



AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1 1. (Currently amended) A method for validating a resource record in a
2 | cache at a client computer system within a network, comprising:
3 | retrieving the resource record at a the client;
4 | issuing one or more queries for the resource record;
5 | waiting for a response to the query; and
6 | if the response to the query is not received in a pre-determined amount of
7 | time, invalidating the resource record at the client.

1 2 (Canceled).

1 3. (Original) The method of claim 1, further comprising:
2 receiving a multicast message from a second client querying a second
3 device;
4 locating a second resource record associated with the second device;
5 waiting for a multicast response to the multicast query; and
6 if after a pre-determined number of queries the multicast response to the
7 multicast query is not received in the pre-determined amount of time, invalidating
8 the second resource record.

1 4. (Original) The method of claim 1, wherein invalidating the resource
2 record further comprises invalidating a child record of the resource record.

1 5. (Original) The method of claim 1, wherein if the response to the query
2 is not received in a pre-determined amount of time, the method further comprises:
3 retrieving a parent record of the resource record at the client, wherein the
4 parent record refers to the resource record;
5 issuing a query for the parent record;
6 waiting for a response to the query from the device; and
7 if the response to the query is not received in a pre-determined amount of
8 time, invalidating the parent record, and then repeating the above process by
9 applying it recursively to any records that refer to the now-invalidated parent
10 record.

1 6. (Original) The method of claim 1, wherein if the response to the query
2 is not received in a pre-determined amount of time, the method further comprises:
3 retrieving a parent record of the resource record at the client, wherein the
4 parent record refers to the resource record;
5 issuing a query for the parent record;
6 receiving a response to the query from the device, wherein the response
7 includes information for updating the resource record; and
8 updating the resource record with the information received in the response.

1 7. (Original) The method of claim 6, wherein the method further
2 comprises updating the parent record with the information received in the
3 response.

1 8. (Original) The method of claim 1, wherein the method is invoked at a
2 pre-specified time interval.

1 9. (Currently amended) A computer-readable storage medium storing
2 instructions that when executed by a computer cause the computer to perform a
3 method for validating a resource record in a cache at a client computer system
4 within a network, the method comprising:
5 retrieving the resource record at a the client;
6 issuing one or more queries for the resource record;
7 waiting for a response to the query; and
8 if the response to the query is not received in a pre-determined amount of
9 time, invalidating the resource record at the client.

1 10 (Canceled).

1 11. (Original) The computer-readable storage medium of claim 9, wherein
2 the method further comprises:
3 receiving a multicast message from a second client querying a second
4 device;
5 locating a second resource record associated with the second device;
6 waiting for a multicast response to the multicast query; and
7 if after a pre-determined number of queries the multicast response to the
8 multicast query is not received in the pre-determined amount of time, invalidating
9 the second resource record.

1 12. (Original) The computer-readable storage medium of claim 9, wherein
2 invalidating the resource record further comprises invalidating a child record of
3 the resource record.

1 13. (Original) The computer-readable storage medium of claim 9, wherein
2 if the response to the query is not received in a pre-determined amount of time,
3 the method further comprises:
4 retrieving a parent record of the resource record at the client, wherein the
5 parent record refers to the resource record;
6 issuing a query for the parent record;
7 waiting for a response to the query from the device; and
8 if the response to the query is not received in a pre-determined amount of
9 time, invalidating the parent record, and then repeating the above process by
10 applying it recursively to any records that refer to the now-invalidated parent
11 record.

1 14. (Original) The computer-readable storage medium of claim 9, wherein
2 if the response to the query is not received in a pre-determined amount of time,
3 the method further comprises:
4 retrieving a parent record of the resource record at the client, wherein the
5 parent record refers to the resource record;
6 issuing a query for the parent record;
7 receiving a response to the query from the device, wherein the response
8 includes information for updating the resource record; and
9 updating the resource record with the information received in the response.

1 15. (Original) The computer-readable storage medium of claim 14,
2 wherein the method further comprises updating the parent record with the
3 information received in the response.

1 16. (Original) The computer-readable storage medium of claim 9, wherein
2 the method is invoked at a pre-specified time interval.

1 17. (Currently amended) An apparatus that validates a resource record
2 | in a cache at a client computer system within a network, comprising:
3 | a retrieval mechanism at ~~a~~the client configured to retrieve the resource
4 | record; and
5 | an invalidation mechanism configured to,
6 | issue one or more queries for the resource record,
7 | wait for a response to the query, and
8 | if the response to the query is not received in a pre-
9 | determined amount of time, to invalidate the resource record at the
10 | client.

1 18 (Canceled).

1 19. (Original) The apparatus of claim 17, wherein the invalidation
2 | mechanism is configured to:
3 | receive a multicast message from a second client querying a second
4 | device;
5 | locate a second resource record associated with the second device;
6 | wait for a multicast response to the multicast query; and
7 | if after a pre-determined number of queries the multicast response to the
8 | multicast query is not received in the pre-determined amount of time, to invalidate
9 | the second resource record.

1 20. (Original) The apparatus of claim 17, wherein invalidating the
2 | resource record further comprises invalidating a child record of the resource
3 | record.

1 21. (Original) The apparatus of claim 17, wherein if the response to the
2 query is not received in a pre-determined amount of time, the invalidation
3 mechanism is additionally configured to:
4 retrieve a parent record of the resource record at the client, wherein the
5 parent record refers to the resource record;
6 issue a query for the parent record;
7 wait for a response to the query from the device; and
8 if the response to the query is not received in a pre-determined amount of
9 time, to invalidate the parent record, and to then repeat the above process by
10 applying it recursively to any records that refer to the now-invalidated parent
11 record.

1 22. (Original) The apparatus of claim 17, further comprising an updating
2 mechanism, wherein if the response to the query is not received in a pre-
3 determined amount of time, the updating mechanism is configured to:
4 retrieve a parent record of the resource record at the client, wherein the
5 parent record refers to the resource record;
6 issue a query for the parent record;
7 receive a response to the query from the device, wherein the response
8 includes information for updating the resource record; and to
9 update the resource record with the information received in the response.

1 23. (Original) The apparatus of claim 22, wherein the updating
2 mechanism is additionally configured to update the parent record with the
3 information received in the response.

1 24. (Original) The apparatus of claim 17, wherein the apparatus is
2 invoked at a pre-specified time interval.

1 25. (New) A method for responding to a query at a device in a network,
2 related to a service provided by the device, comprising:
3 receiving a query from a client in the network about a service provided by
4 the device, wherein the query is for a resource record of the device; and
5 responding to the query with a multicast response sent to the network,
6 wherein responding within a pre-determined amount of time results in validation
7 of the resource record of the device at the querying client, as well as at other
8 clients in the network that contain the resource record of the device, thereby
9 saving network bandwidth.

1 26. (New) The method of claim 25, wherein the received query can be a
2 unicast or a multicast query from the client.

1 27. (New) The method of claim 25, wherein the response sent to the
2 network is multicast within receiving a pre-specified number of queries regarding
3 the resource, thereby allowing other clients to update corresponding copies of the
4 resource records without querying the device, thus saving network bandwidth.

1 28. (New) A computer-readable storage medium storing instructions that
2 when executed by a device computer within a network cause the device computer
3 to perform a method for responding to a query at the device in a network, related
4 to a service provided by the device, comprising:
5 receiving a query from a client in the network about a service provided by
6 the device, wherein the query is for a resource record of the device; and
7 responding to the query with a multicast response sent to the network,
8 wherein responding within a pre-determined amount of time results in validation
9 of the resource record of the device at the querying client, as well as at other

10 clients in the network that contain the resource record of the device, thereby
11 saving network bandwidth.

1 29. (New) The storage-medium of claim 28, wherein the received query
2 can be a unicast or a multicast query from the client.

1 30. (New) The storage medium of claim 28, wherein the response to the
2 network is multicast within receiving a pre-specified number of queries regarding
3 the resource, thereby allowing other clients to update corresponding copies of the
4 resource records without querying the device, thus saving network bandwidth.

1 31. (New) An apparatus that responds to a query at a device in a network,
2 related to a service provided by the device, comprising:
3 a receiving mechanism configured to receive a query from a client in the
4 network about a service provided by the device, wherein the query is for a
5 resource record of the device; and
6 a responding mechanism configured to respond to the query with a
7 multicast response sent to the network, wherein responding within a pre-
8 determined amount of time results in validation of the resource record of the
9 device at the querying client, as well as at other clients in the network that contain
10 the resource record of the device, thereby saving network bandwidth.

1 32. (New) The apparatus of claim 31, wherein the receiving mechanism to
2 configured to receive both unicast or multicast queries from the client.

1 33. (New) The apparatus of claim 31, wherein the responding mechanism
2 is configured to multicast the response to the network within receiving a pre-
3 specified number of queries regarding the resource, thereby allowing other clients

4 to update corresponding copies of the resource records without querying the
5 device, thus saving network bandwidth.

1 34. (New) A computer-readable storage medium storing a resource record
2 corresponding to a device in a network, the resource record comprising:
3 a type of the device;
4 a name of the device;
5 links to one or more service records, wherein each service record contains
6 information about an available service on the device, wherein the information
7 about the available service includes;
8 the name of the device; and
9 links to records containing information necessary for using the device,
10 wherein this information may involve links to a corresponding address record
11 containing the Internet Protocol address for the device.